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BODY MEASUREMENTS FOR THE SIZING OF APPAREL FOR INFANTS, BABIES, TODDLERS AND CHILDREN

(For the Knit Underwear Industry) 1/

COMMERCIAL STANDARD CS151-50

On September 10, 1945, at the instance of the Mail Order Association of America, a Recommended Commercial Standard on Body Measurements for the Sizing of Apparel for Infants, Babies, Toddlers, and Children was presented to interested producers, distributors, and users for written acceptance. The knit underwear industry has accepted and approved the commercial standard as shown herein. The standard is effective for the knit underwear industry from October 30, 1948.

PURPOSE

1. The purpose is to provide standard classifications, size designations, and body measurements for the sizing of infants', babies', toddlers', and children's ready-to-wear apparel for the guidance of those engaged in producing, or preparing specifications for, ready-to-wear garments and patterns. Another purpose is to recommend methods of determining lengths of dresses, coats, skirts and slacks (outseams) from appropriate body measurements. Size ranges for the more important types of babies' garments are given.

SCOPE

2. This standard covers:

(a) Classifications and size ranges

- (1) Infants -- in one size only (see table 1, footnote A/)
- (2) Babies --- in sizes from 3 mo. to 36 mo.
- (3) Toddlers - in sizes from number 1 to 4
- (4) Children - in sizes from number 2 to 6X

1/ This system of sizing has been endorsed by a majority of production of knit underwear. The use of this standard, however, is not restricted to that industry, but may be used by all other segments of the apparel industry, as applicable.

- (b) Size designations
- (c) Composite body measurements of boys and girls for "regular" sizes, up to a stature of 48 inches and a weight of 54 pounds.
- (d) Lengths of garments
- (e) Methods of measuring
 - (1) General
 - (2) Vertical measurements of body
 - (3) Girth measurements of body
 - (4) Width and length measurements of body
 - (5) Garment lengths
- (f) Relationship of stature measurements to the sizing system
- (g) Recommended methods of identification
- (h) Explanation of adjustments made in body measurements

APPLICATION

- 3. The methods and measurements given herein are applicable to:
 - (a) Coordination of body measurements of the child, as defined, with ready-to-wear size designations.
 - (b) Garment patterns and specifications, as a basis of gradations between sizes.
 - (c) Length measurements of the finished garment as delivered by the manufacturer.

DEFINITIONS

- 4. Definitions of the more important body landmarks shown in figure 1, are given in paragraph 5.

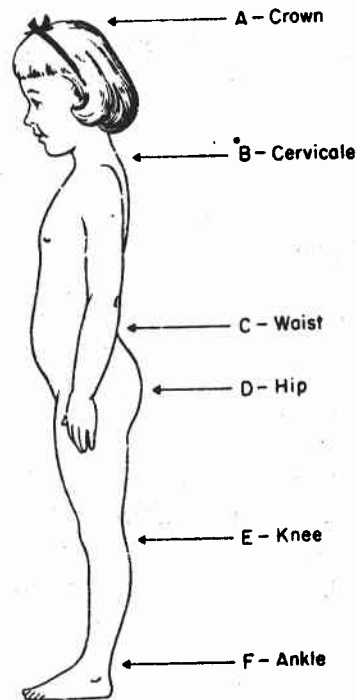


Figure 1. Showing general location of principal body landmarks.

5. Body Landmarks

- (a) Crown - Top of head (A, fig. 1).
- (b) Cervicale - The prominence on the seventh or lowest cervical vertebra at the back of the neck (B, fig. 1) which becomes more prominent when the head is bent forward. (Cervicale height measurements are taken, however, only when the head is in an erect position.)
- (c) Waist - The lower edge of lower floating rib, located at the side of the body in a line directly below the center of the armpit (C, fig. 1).
- (d) Hip - The outer bony prominence of the upper end of the thigh bone (the femur) (D, fig. 1).
- (e) Knee - The inner bony prominence of the upper end of the tibia, the larger of the two bones of the leg extending from knee to ankle (E, fig. 1).
- (f) Ankle - The inner bony prominence of the lower end of the tibia at the ankle (F, fig. 1).

METHODS OF MEASURING - GENERAL

6. Accuracy. Body measurements are taken to the nearest $1/8$ inch. Garment length measurements are taken to the nearest $1/2$ inch.

7. Garment lengths 2/ The garment to be measured is laid out without tension on a smooth flat surface so that creases and wrinkles will not affect the measurements.

Methods of Measuring the Body 3/

8. Vertical measurements.

- (a) Stature - Measured from crown to soles of feet.
- (b) Cervicale height - Measured from cervicale (par. 5(b)) to soles of feet.
- (c) Waist height - Measured from waist (par. 5(c)) to soles of feet. This waist height establishes the waist level around the body.
- (d) Hip height - Measured from hip (par. 5(d)) to soles of feet.
- (e) Knee height - Measured from knee (par. 5(e)) to soles of feet.
- (f) Ankle height - Measured from ankle (par. 5(f)) to soles of feet.

9. Girth measurements.

- (a) When indoor clothing is worn - a dress by girls, and a shirt and trousers or pants, without a belt, by boys. 4/

2/ Length measurements of garments are included in this standard because they closely approximate the distance between the landmarks that apply to particular garments, and serve to insure a greater degree of uniformity in trade interpretation of these data.

3/ More complete information regarding the methods of measuring the body may be obtained from item 6 of Bibliography, on page 18.

4/ It is assumed that customary undergarments will be worn underneath the outer apparel (See par. 18).

9. Girth measurements (cont'd.)

- (1) Chest (girth) - Measured horizontally close up under arms. The measurement should include the lower portion of the shoulder blades.
 - (2) Waist (girth) - Measured horizontally at waist height (par. 8(c)), with belt or sash removed.
 - (3) Hip (girth) - Measured horizontally at hip height (par. 8(d)).
- (b) When undergarments are worn - vest and panties by girls, shirt and shorts by boys, or a one-piece union suit or any similar undergarment.
- (1) Vertical trunk (girth) - Measured from a point on the shoulder, midway between the neck and the normal armhole line, through the crotch (G through N to G, fig. 2). The measurement should be taken without constriction at crotch.



Figure 2. Vertical trunk and thigh.



Figure 3. Armscye, upper arm and neck girths

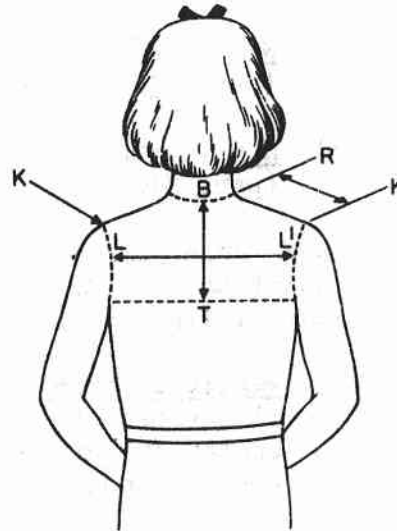


Figure 4. Armscye and neck girths, shoulder length, scye depth, and cross-back width.

9. Girth measurements (cont'd.)

- (b) (2) Thigh (girth) - Measured horizontally around the upper part of the leg, close up to the crotch (H through N to H, fig. 2).
- (3) Neck base (girth) - Measured around the neck touching the cervicale at the back, and the upper borders of the collar bone at the front, and following the curve that would be made by a fine linked chain passing over these landmarks (B through J to B, figs. 3 and 4).
- (4) Armscye (girth) - Measured from a point at the armhole edge of the shoulder, midway between the acromion and the highest prominence at the lateral end of the collar bone, and through the underarm mid-point (K around the arm to K, figs. 3 and 4).
- (5) Upper arm (girth) - Measured from a point midway between the outer edge of the shoulder and the elbow (around the arm at U level, fig. 3).

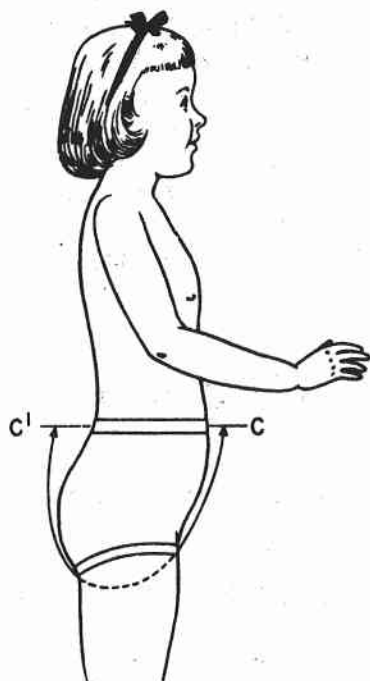


Figure 5. Total crotch length.



Figure 6. Shoulder and arm length.

10. Width and length measurements.

- (a) Cross-back width - Measured across the back from armscye to armscye, halfway between the cervicale and the bottom of the armscye (L to L¹, fig. 4).
- (b) Shoulder length - Measured along a line corresponding to the customary shoulder line of a garment from the neck base line to the armscye line (R to K, fig. 4).
- (c) Scye depth - Measured from cervicale along the spine to point at the "center back" where chest girth crosses the "center back" line (B to T, Fig. 4).
- (d) Total crotch length - Measured from waist level at the front, through the crotch to the waist level at the back (C through N to C¹, figs. 2 and 5). For waist level, see paragraph 8(c).
- (e) Shoulder and arm length - Measured from the intersection of the neck and shoulder lines along the outside (posterior) surface of the arm, with the elbow flexed, to the prominent wrist bone at the back of the hand (O to M, fig. 6).

11. Garment lengths.

- (a) Length of dresses and coats. - Measured from the high neck point at the "center back" ^{5/} along the "center back" line, to the bottom of the garment.
- (b) Length of skirts - Measured from the top of the belt at the "center back" along the "center back" line, to the bottom of the garment.
- (c) Length of slacks - Measured from the top of the waist band to the finished lower edge of the garment. This is the outseam or side-seam length.
- (d) Length of bands - Measured from center of shoulder strap to bottom of garment.
- (e) Length of shirts - Measured from neck edge of shoulder seam to bottom of garment.

STATURE MEASUREMENTS AS SIZE INDICATORS

12. In view of the fact that stature measurements are the predominant growth measurements of infants, toddlers, and children and also one of the best single indicators of other body measurements, the sizes in this standard are based primarily on even variations (2, 2½ or 3 inches) in stature measurements.

12a. Weights corresponding to the given statures and chest or hip girths are high-lighted in the tables for the convenience of the user. They have been adjusted to compensate for the weight of indoor clothing, assumed to be worn by the child when the body measurements are taken.

CLASSIFICATIONS AND CORRESPONDING MEASUREMENTS

13. The size designations and corresponding body measurements are given in tables 1, 5 and 7 for the four classifications.

13a. The lengths for dresses, coats, skirts, slacks, bands and shirts are given in tables 2, 6 and 8.

13b. The size ranges for the more important types of infants' and babies' garments are given in tables 3 and 4.

^{5/} Center back: This is the term used in the apparel industry to describe the position of the seam at the center of the back (from cervicale to hem) or the corresponding imaginary line when no seam appears in the garment.

Table 1. INFANTS' and BABIES' A/ Body Measurements
(Composite of boys' and girls' measurements)

Measurement	S I Z E					
	3 mo.	6 mo.	12 mo.	18 mo.	24 mo.	36 mo.
STATURE - Inches	24	26 1/2	29	31 1/2	34	36 1/2
WEIGHT - pounds (approx.)	13	18	22	26	29	32
GIRTH MEASUREMENTS <u>B/</u>						
	inches	inches	inches	inches	inches	inches
Chest	17	18	19	20	21	22
Vertical trunk	27	29	31	32 1/2	34 1/2	36 1/2
LENGTH MEASUREMENT <u>B/</u>						
Shoulder and arm length	9	10 1/4	11 1/2	12 1/2	13 3/4	15
VERTICAL MEASUREMENTS <u>C/</u>						
Head and neck length	5 3/4	6	6 1/8	6 3/8	6 5/8	6 3/4
Cervicale height	18 1/4	20 1/2	22 7/8	25 1/8	27 3/8	29 3/4
Cervicale to knee	13	14 1/2	16 1/8	17 1/2	18 3/4	20 3/8
Cervicale to waist, including curve of spine	6 1/8	6 7/8	7 1/2	8	8 3/8	8 3/4
Waist height	12 1/8	13 5/8	15 1/2	17 3/8	19 1/4	21 1/8
Waist to knee	6 7/8	7 3/4	8 3/4	9 5/8	10 5/8	11 5/8
Waist to hip	2 5/8	2 7/8	3 1/8	3 1/2	3 7/8	4 1/4
Crotch height	7 3/4	9 1/8	10 1/2	11 7/8	13 1/4	14 5/8
Knee height	5 1/4	6	6 3/4	7 5/8	8 1/2	9 3/8
Approximate age, based on stature. Related weights shown above	months 3	months 6 1/2	months 11 1/2	months 17 1/2	months 25 1/2	months 35

A/ The principal difference between the classifications "Infants" and "Babies" is a merchandising difference. Infants' garments are to be made in one size only, babies' in more than one (see tables 3 and 4).

B/ These measurements are body, not garment measurements. The size-to-size gradations in these body measurements may be applied to garment patterns or specifications in grading, but they are not to be considered actual garment measurements.

C/ Since even gradations in vertical body measurements between sizes serves to make this standard more useful in grading garment patterns or specifications, minor adjustments (1/8 of an inch) have been made in a few instances to achieve this purpose.

Table 2. BABIES' Garment Lengths

Garment - where measured	S I Z E				
	3 mo.	6 mo.	12 mo.	18 mo.	24 mo.
Coat, at center back	in. -	in. 14 1/2	in. 15 1/2	in. 16 1/2	in. -
Dress, at center back	-	14 <u>A/</u>	15	16	-
Bottom of dress falls, above knee (approx.)	-	1/2	1	1 1/2	-
Bands and shirts, total length	10 1/2	11 1/2	12 1/2	14	15 1/2

A/ The relationship between the body measurements in Table 1 and the garment measurements in Table 2 can be illustrated by the following:

Cervicale to knee - Table 1 - 14 1/2 inches for size 6 mo.

Bottom of dress
above knee - Table 2 - 1/2 inch for size 6 mo.

The difference is 14 inches, the dress length given in Table 2.

Table 3. Standard Size Range for Certain INFANTS' A/ Garments

Garment	S I Z E		
	3 mo.	6 mo.	12 mo.
Gowns Layettes Sweaters Wrappers	Normally made in only one of the above sizes.		

Table 4. Standard Size Range for Certain BABIES' B/ Garments

Garment	S I Z E C/					
	3 mo.	6 mo.	12 mo.	18 mo.	24 mo.	36 mo.
UNDERWEAR						
Bands	X	X	X	X	X	
Pants, rubber	X	X	X	X		
Pants, training			X	X	X	X
Shirts	X	X	X	X	X	
OUTERWEAR						
Coats		X	X	X		
Creepers		X	X	X		
Dresses		X	X	X		
Sun Suits		X	X	X		

A/ These garments, depending upon the type, may be made according to any one of three sets of body measurements, viz., 3 mos., 6 mos., or 12 mos. Such measurements, however, shall be identical with the corresponding sizes of the babies' classification, Table 1.

B/ These garments shall be made according to the body measurements in Table 1.

C/ An "X" in any column indicates that the garment is to be made in that size.

Sizing of Apparel - Infants to Children

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Table 5. TODDLERS' Body Measurements
(Composite of Boys' and girls' measurements)

Size (number)	1	2A/	3A/	4A/
STATURE - inches	31	34	37	40
WEIGHT - pounds (approx.)	25	29	34	38
GIRTH MEASUREMENTS B/				
	inches	inches	inches	inches
Chest	20	21	22	23
Waist	20	20 1/2	21	21 1/2
Vertical trunk	32 1/2	34 1/2	36 1/2	39
Thigh	11 1/2	12	12 1/2	13
Neck base	9 5/8	10	10 3/8	10 3/4
Armscye	8 1/2	9	9 1/2	10
Upper arm girth	5 7/8 D/	6 1/8 D/	6 3/8	6 5/8
WIDTH AND LENGTH MEASUREMENTS B/				
Cross-back width	8 1/8	8 5/8	9	9 3/8
Shoulder length	2 1/2	2 5/8	2 3/4	2 7/8
Sleeve depth	3 3/4 D/	4 D/	4 1/4	4 1/2
Total crotch length	16	17	18	19
Shoulder and arm length	12 1/2	13 3/4	15	16 1/2
VERTICAL MEASUREMENTS C/				
Head and neck length	6 1/4	6 5/8	7	7 1/4
Cervicale height	24 3/4	27 3/8	30	32 3/4
Cervicale to knee	17 1/4	18 7/8	20 1/2	22 1/4
Cervicale to waist, including curve of spine	8	8 1/2	9	9 1/2
Waist height	17	19 1/4	21 1/2	23 3/4
Waist to knee	9 1/2	10 3/4	12	13 1/4
Waist to hip	3 3/8	3 7/8	4 3/8	4 3/4
Crotch height	11 1/2	13 1/8	14 7/8	16 5/8
Knee height	7 1/2	8 1/2	9 1/2	10 1/2
Ankle height	1 5/8	1 3/4	1 7/8	2 1/8
	months	months	months	months
Approximate age, based on stature.	16 1/2	25 1/2	37	50
Related weights shown above				

- A/ Body measurements for these sizes are identical with the corresponding sizes of the children's classification - Table 7.
- B/ These measurements are body, not garment measurements. The size-to-size gradations between these body measurements may be applied to garment patterns or specifications in grading, but they are not to be considered actual garment measurements.
- C/ Since even gradations in vertical body measurements between sizes serve to make this standard more useful in grading garment patterns or specifications, minor adjustments (1/8 inch) have been made in a few instances to achieve this purpose.
- D/ Extrapolated

Table 6. TODDLERS' Garment Lengths A/

Garment - Where measured	S I Z E			
	1	2	3	4
Coat, at center back	inches 16	inches 17	inches 18	inches 19 1/2
Dress, at center back	15 1/2	16 1/2	17 1/2	-
Bottom of dress falls, above knee (approx.)	2	2 1/2	3	-
Slacks, outseam, including waistband	18 1/2	20	21 1/2	23 1/2
Distance garment extends above waist height	2 1/2	1 3/4	1	3/4
Bottom of slacks, clearance above soles of feet	1	1	1	1

A/ See footnote A/ of Table 1, which shows how dress lengths can be calculated.

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Table 7. CHILDREN'S Body Measurements
(Composite of boys' and girls' measurements)

Size (number)	2	3	4	5	6	6X
STATURE - inches	34	37	40	43	46	48
WEIGHT - pounds (approx.)	29	34	38	44	49	54
GIRTH MEASUREMENTS <u>A/</u>						
	inches	inches	inches	inches	inches	inches
Chest	21	22	23	24	25	25 1/2
Waist	20 1/2	21	21 1/2	22	22 1/2	23
Hip	21 1/2	22 1/2	23 1/2	24 1/2	25 1/2	26 1/2
Vertical trunk	34 1/2	36 1/2	39	41	43	44 1/2
Thigh	12	12 1/2	13	13 1/2	14	14 1/2
Neck base	10	10 3/8	10 3/4	11 1/8	11 1/2	11 7/8
Armscye	9	9 1/2	10	10 1/2	11	11 1/2
Upper Arm girth	6 1/8 <u>C/</u>	6 3/8	6 5/8	6 3/4	7	7 1/4
WIDTH AND LENGTH MEASUREMENTS <u>A/</u>						
Cross-back width	8 5/8	9	9 3/8	9 3/4	10 1/8	10 3/8
Shoulder length	2 1/2	2 3/4	2 7/8	3	3 1/8	3 1/8
Scye Depth	4 <u>C/</u>	4 1/4	4 1/2	4 3/4	5	5 1/8
Total crotch length	17	18	19	19 3/4	20 1/2	21 1/2
Shoulder and arm length	13 3/4	15	16 1/2	18	19 1/4	20 1/4
VERTICAL MEASUREMENTS <u>B/</u>						
Head and neck length	6 5/8	7	7 1/4	7 1/2	7 3/4	8
Cervicale height	27 3/8	30	32 3/4	35 1/2	38 1/4	40
Cervicale to knee	18 7/8	20 1/2	22 1/4	24	25 3/4	27
Cervicale to waist, including curve of spine	8 1/2	9	9 1/2	10	10 1/2	10 3/4
Waist height	19 1/4	21 1/2	23 3/4	26	28	29 1/2
Waist to knee	10 3/4	12	13 1/4	14 1/2	15 1/2	16 1/2
Waist to hip	3 7/8	4 3/8	4 3/4	5 1/8	5 1/2	5 3/4
Crotch height	13 1/8	14 7/8	16 5/8	18 3/8	20 1/8	21 3/8
Knee height	8 1/2	9 1/2	10 1/2	11 1/2	12 1/2	13
Ankle height	1 3/4	1 7/8	2 1/8	2 1/2	2 3/8	2 3/8
Approximate age, based on stature, Related weights shown above.	months 25 1/2	months 37	months 50	months 63	months 77	months 88

A/ These measurements are body, not garment measurements. The size-to-size gradations between these body measurements may be applied to garment patterns or specifications in grading but they are not to be considered actual garment measurements.

B/ Since even gradations in vertical body measurements between sizes serve to make this standard more useful in grading garment patterns or specifications, minor adjustments (1/8 inch) have been made in a few instances to achieve this purpose.

Table 8. CHILDREN'S Garment Lengths A/

Garment - where measured	S I Z E (number)					
	2	3L <u>B/</u>	4	5	6	6X
Coat, at center back	17 1/2	19	20 1/2	22	23 1/2	25
Dress, at center back	17	18 1/2	20	21 1/2	23	24 1/2
Bottom of dress falls, above knee (approx.)	2	2	2	2 1/2	2 1/2	2 1/2
Skirt, at center back	10	11	12	13	14	15
Distance garment extends above waist height	1 3/4	1	3/4	1/2	1/2	1/2
Bottom of skirt falls, above knee (approx.)	2 1/2	2	2	2	2	2
Slacks, outseam, in- cluding waistband	20	21 1/2	23 1/2	25 1/2	27 1/2	29
Distance garment extends above waist height	1 3/4	1	3/4	1/2	1/2	1/2
Bottom of slacks, clear- ance above soles of feet	1	1	1	1	1	1

A/ See Footnote A/ of Table 1, which shows how dress lengths can be calculated.

B/ Although garments made for this size (3) are made to fit children of the same body measurements as those of the toddlers' classification, the difference in posture of the older children of this classification and the different proportioning of their garments require longer dress and coat lengths. Accordingly, to distinguish size 3 garments of this classification from those of the toddler's classification, it is recommended that the letter "L" (signifying length) be added to the size designation, e.g. 3L.

IDENTIFICATION

14. In order to assure consumers that published scales of body measurements for the sizing of apparel conform to this standard, it is recommended that catalogs and sales literature carry the following statement:

Sizes of Infants', Babies', Toddlers' or Children's
(Use only name of applicable classification)

Apparel are designated and proportioned in accordance with CS151-50, as developed by the trade, under the procedure of the National Bureau of Standards, and issued by the U. S. Department of Commerce.

15. In order to assure the purchaser that she is receiving garments which conform to this system of body measurement sizing, it is recommended that such garments be identified by a sticker, tag, hanger, or other label attached to the garment carrying the following statement.

SIZE _____, CS151-50

HEIGHT _____, WEIGHT _____, * _____

* Use appropriate critical measurement, such as chest, waist, vertical trunk girth, etc.

EXPLANATORY

(The following explanatory paragraphs have been prepared for those who are interested in ascertaining how the body measurements in this standard were derived.)

16. Sources. The body measurements for children under 4 years of age were compiled from various anthropometric data (see bibliography on page 18). The body measurements for children 4 years and older are based on Miscellaneous Publication No. 366, "Body Measurements of American Boys and Girls for Garment and Pattern Construction", issued by the U. S. Department of Agriculture.

16a. The method of joining the two groups of data into a continuous growth curve was developed by the National Bureau of Standards.

16b. The body measurements for sizes 4, 5, 6, and 6X of the Children's classification, based upon Miscellaneous Publication No. 366, represent a compromise between the data given in "C" columns of tables 23 and 25, which are the most common measurements of children of given statures, and the "D" columns of tables 24 and 26, which are the measurements of the next stouter groups. It was considered impractical to develop separate scales of body measurements for the "C" and the "D" groups, as the statures for both groups are the same, and the chest girths vary less than one inch. Further, it was desired to have the measurements reflect the proportions of the "D" or "stouter" group to some degree.

16c. The measurements for the thigh girth, neck base girth, armscye girth, and cross-back width represent graphic extrapolations from measurements in Miscellaneous Publication No. 366.

17. Adjustments to effect compromise between boys' and girls' measurements. Since the variations in measurements between the sexes were not considered sufficient to warrant giving separate measurements for each group, the body measurements in this standard are based upon a composite of boys' and girls' measurements.

18. Adjustments for clothing allowances. Allowances for clothing have been added to the basic body measurements in accordance with the definition in paragraph 9 that the girth body measurements should be taken over clothing. In view of the possible variations in the types of garments worn, and the weights of the fabrics used in those garments, the following uniform clothing allowances were selected:

- (a) Weight - Babies' - 8 oz; Toddlers' - 11 oz; and Children's - 14 oz.
- (b) Chest - $3/4$ of an inch.
- (c) Waist - 1 inch.
- (d) Hip - $3/4$ of an inch.
- (e) Vertical trunk girth - 2 inches.
- (f) Total crotch length - $1\ 1/4$ inches.

19. Adjustments to achieve more uniform gradations between sizes. Unadjusted body measurements frequently do not result in even gradations between sizes. Therefore, it has been necessary to make minor adjustments in the measurements to insure more even gradations between sizes. However, except for a slight "thickening" at the waist, due to the greater variation of the waist girth in relation to the other body measurements, and the clothing allowances indicated in paragraph 18, the girth measurements reflect the general chest, waist and hip proportions of children of the given statures and weights.

Bibliography on page 18.

While the above is the complete standard, additional material of interest to those concerned will be contained in a printed pamphlet entitled "Body Measurements for the Sizing of Apparel for Infants, Babies, Toddlers, and Children (For the Knit Underwear Industry), CS151-50", issued by the United States Department of Commerce. This pamphlet will include, in addition to the standard, a list of acceptors, brief history of the project, membership of the Standing Committee, etc., but the printing of it will be held in abeyance until the other affected producer groups (besides knit underwear group) have had an opportunity to indicate the extent of their support for this system of sizing.

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